

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code _____

Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 4 Resource name(s) or number (assigned by recorder) N-238

P1. Other Identifier: Thermophysics Facilities Branch – Arc Jet Laboratory

***P2. Location:** ☒ Not for Publication ☐ Unrestricted

***a. County** Santa Clara

***b. USGS 7.5' Quad** San Francisco North, Calif. **Date:** 1995

***c. Address** 980 Mark Avenue

City Moffett Field

Zip 94035

***e. Other Locational Data:**

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

Located at the southwest corner of Hunsaker Road and Mark Avenue, Building N-238 has a long rectangular plan with two distinct massings: a one-story brick office portion and a 1½-story corrugated metal storage area. This building has a concrete foundation, a steel-frame structural system, a flat roof, and aluminum-sash awning windows. This building is accessed through three openings: a glazed double door on the north façade and a steel overhead door on the east and west façades. Along the south façade, Building N-238 is attached to the adjacent wind tunnel. This facility has been used for space shuttle panel and leading edge thermal protection system tests. It is 17,030 sq. ft.

See Continuation Sheets for technical description.

This building appears to be in good condition.

***P3b. Resource Attributes:** (list attributes and codes) HP39 – Other: Research and laboratory

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5a. Photo



P5b. Photo: (view and date)
View of north and east façades
(08/04/05)

***P6. Date Constructed/Age and Sources:** 1964

***P7. Owner and Address:**
United States of America as
represented by National Aeronautics
and Space Administration (NASA)

***P8. Recorded by:**
Page & Turnbull, Inc.
724 Pine Street
San Francisco, CA 94108

***P9. Date Recorded:** 08/04/05

***P10. Survey Type:**
Reconnaissance

***P11. Report Citation:** National
Aeronautics and Space
Administration, *Technical Facilities
Catalog*, Volume 1, publication NHB
8800.5A (1), October 1974; Technical

Information Division, Ames Research Center, *Ames Research Facilities Summary*, 1974; Donald D. Baals and William R. Corliss, *Wind Tunnels of NASA*, NASA SP-440, 1981.

***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☐ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (list)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____

HRI # _____

Trinomial _____

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Resource Name or # N-238

*Recorded by Richard Sucre

*Date 04/07/06

☒ Continuation ☐ Update

6. INTERACTION HEATING FACILITY

DESCRIPTION:

The Interaction Heating Facility and the 20 Megawatt Pilot Test Facility are used for studies of aerodynamic heating in the thermal environment resulting from the interaction of a flow field with an irregular surface. Both facilities are essentially identical, except for scale and are driven by constricted arc-heaters rated at 60MW and 20MW, respectively. Power is furnished by two DC power supplies; a 40MW power supply serving building N-238, and a 20MW power supply common to building N-234. The effluent gas stream (test gas is air with flow rates from 0.1 to 5.0 lb/sec) discharges into a five-stage steam-ejector-driven vacuum system, also common to building N-234. Two nozzles are available for each facility, a conical nozzle (Mach number ~ 5), and a semi-elliptic nozzle (Mach number ~ 3). Data are recorded by digital printout paper tape and by punched paper tape from pressure cells, calorimeters, thermocouples, and optical pyrometers. Run-time is thirty minutes for each facility.

PERFORMANCE: 20MW Pilot Test Facility

Enthalpy	4,000 to 14,000 BTU/lb
Plenum pressure	1 to 10 atmospheres
Conical nozzle	16 inches
exit diameter (M ~ 5)	
Semi-elliptic width (M ~ 3)	15 inches, flat side

PERFORMANCE: 60MW Interaction Heating Facility

Enthalpy	4,000 to 14,000 BTU/lb
Plenum pressure	1 to 10 atmospheres
Conical nozzle exit	
diameter (M ~ 5)	41 inches
Semi-elliptic width (M ~ 3)	30 inches, flat side

STATUS:

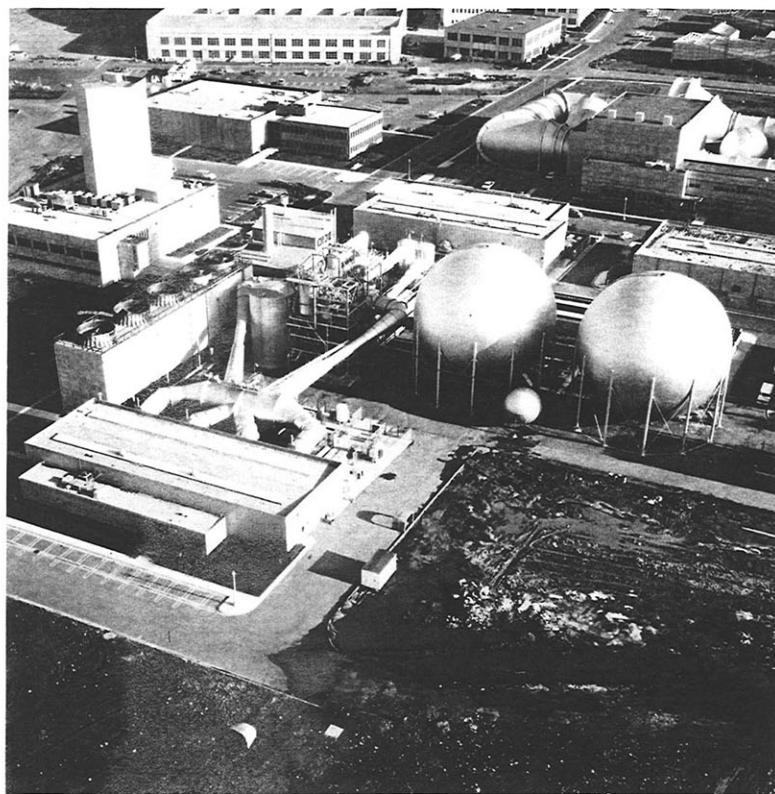
Operational since 1973 and 1974, respectively

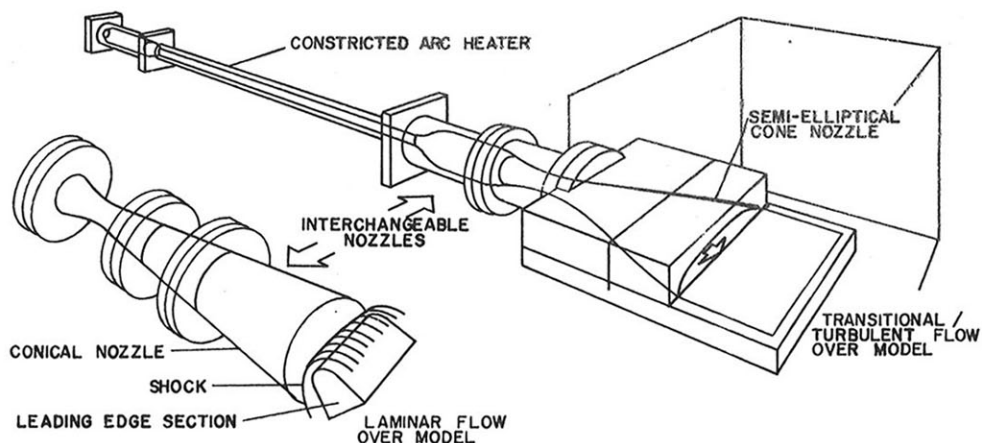
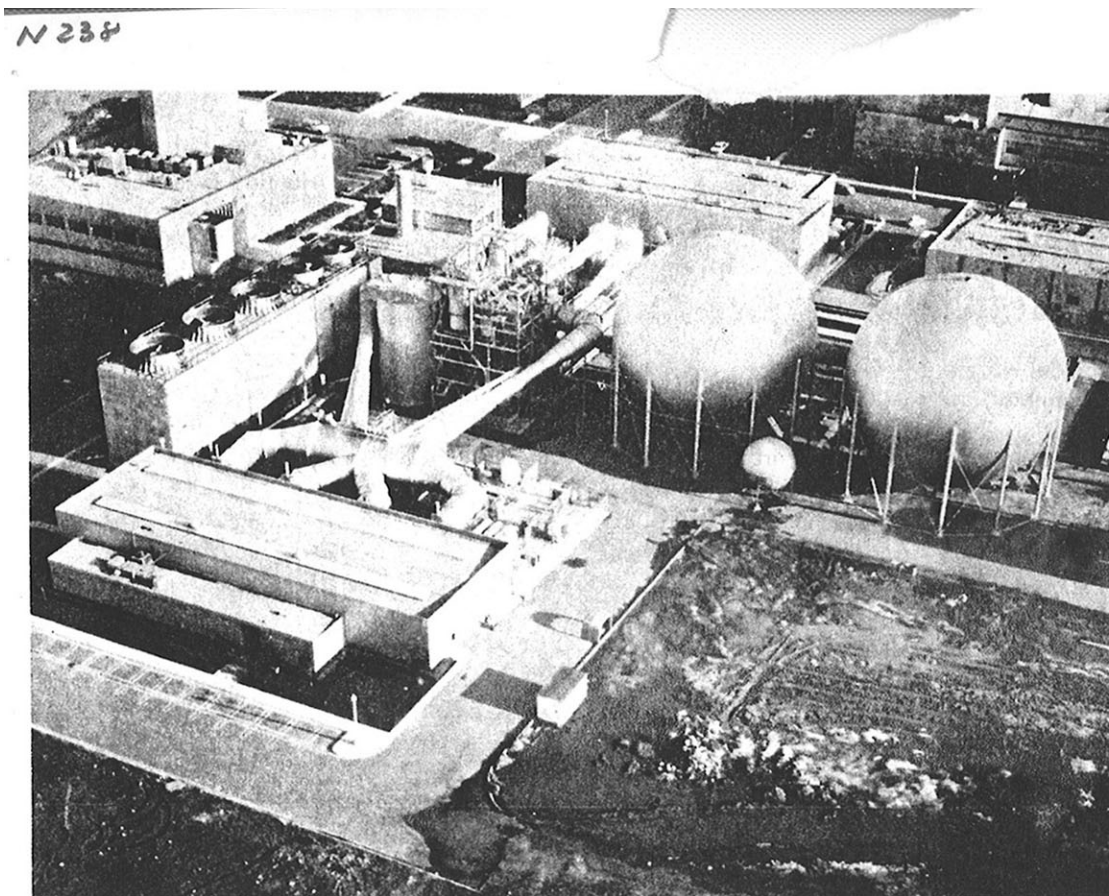
JURISDICTION:

Thermo- and Gas-Dynamics Division
Thermal Protection Branch
Howard K. Larson

LOCATION:

Building N-238





DESCRIPTION

The Interaction Heating Facility and the 20-MW Pilot Test Facility are used for studies of aerodynamic heating in the thermal environment resulting from the interaction of a flow field with an irregular surface. Both facilities are essentially identical except for scale, and are driven by constricted arc-heaters rated at 60 MW and at 20 MW. Power is furnished by 2 dc power supplies. The effluent gas stream (test gas is air with flow rates from 0.1 to 5.0 lb/sec) discharges into a 5-stage steam-ejector-driven vacuum system. Two nozzles are available for each facility, a conical nozzle (Mach \approx 5) and a semi-elliptical nozzle (Mach \approx 3). Run time is 30 min for each facility.

CONTINUATION SHEET

Primary # _____

HRI # _____

Trinomial _____

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Resource Name or # N-238

*Recorded by Richard Sucré

*Date 04/07/06

☒ Continuation ☐ Update

N 238

CHARACTERISTICS

	20-MW Pilot Test Facility	60-MW Interaction Heating Facility
Enthalpy, BTU/lb:	4000 to 14,000	4000 to 14,000
Plenum Pressure, atm:	1 to 10	1 to 10
Conical Nozzle ($M \approx 5$) Exit Diameter, in.:	16	41
Semi-Elliptical Width ($M \approx 3$), in.:	15, flat side	30, flat side